

## LANDSCAPE PROPOSALS

The proposals are to mitigate for tree, vegetation and habitat loss as a result of construction of a new irrigation reservoir and provide the required biodiversity net gain (BNG). The proposals include the new reservoir Area A, plus two other offset areas within the Burhill Golf Course landownership, Areas B & C. The proposals include woodland and scrub planting, enhancements to existing grassland and the provision of new areas of wildflower grassland. The composition of the tree, woodland and scrub planting and wildflower grass mixes is to work with appropriate existing species and additional species to enhance the biodiversity.

### Proposals for Area A - Proposed Reservoir

To replace the woodland and trees removed in order to accommodate the reservoir.

Woodland to be planted adjacent to the retained trees around an existing pond north of the reservoir. Species selected appropriate to the conditions; alder; silver birch; English oak; rowan and crack willow, with some shrub species; hazel; hawthorn; blackthorn and common osier to benefit biodiversity and provide foraging and nesting habitat for birds.

Scrub planting to the west boundary of the reservoir bund is proposed to break up the line of bund and soften the view from the golf course to the west. Shrubs species proposed as above, plus holly and elder, again to benefit biodiversity and provide foraging/nesting habitat.

The bunds of the reservoir are to be seeded with wildflower grass land mixes, the outer edge of the bund with a mixture containing a wide range of species to create a very diverse sward. The inner bund adjacent to the water is to be seeded with wild flowers and grasses suitable for sowing at the wet margins of water bodies.

### Proposals for Area B -BNG offset area south of reservoir

This area is an existing horse paddock with short grass which has little biodiversity. The area is west of existing mature woodland, trees and scrub. The proposals are to provide additional woodland and scrub with a margin of wildflower grassland.

Woodland planting is proposed closest to the existing woodland. Species selected; field maple, alder, silver birch, Scot's pine, English oak, Rowan, with some understory shrub species; hazel, hawthorn; holly and elder to increase biodiversity.

Scrub planting south and west of proposed woodland with hazel, hawthorn, holly, blackthorn, crab apple, dog rose and elder to create a woodland edge that will benefit biodiversity and provide foraging and nesting habitat for birds.

The edge of the planting is to be seeded with a hedgerow mix which contains wild flowers and grasses that are tolerant of semi-shade and is suitable for sowing on woodland edges.

### Proposals for Area C -BNG offset area west of the river Mole.

This area is an existing floodplain adjacent to the river Mole, there are a few existing mature and young self set oak trees dotted through existing grassland with a limited species composition. There are a number of cricket bat willow trees (recently planted standards) to the northern end of this area. The proposals allow for retaining the existing mature trees/cricket bat willows and carrying out improvements to the grassland surrounding them by introducing wildflower seeds and managing the area to improve the biodiversity.

## SPECIFICATION

### GENERAL

All planting to comply with BS3936 Relevant parts for Nursery Stock

All pre-planting, site preparation, planting and post planting maintenance shall be carried out in accordance with BS4428:1989 Code of Practice for General Landscape Operations and BS7370-4:1993 Grounds Maintenance.

All trees shall be positioned in accordance with BS5837:2012 Trees in Relation to Design, Demolition and Construction and BS 8545:2014 Trees: from nursery to independence in the landscape. Recommendations

There are to be no tree species to be planted within 5m of underground or overhead services Refer to table for planting schedule

### SCHEDULE OF IMPLEMENTATION

The landscape reinstatement shall be carried out in the first available season after completion of construction, when weather conditions are suitable:

Soiling/soil preparation works and seeding April - October

Planting October - March

### SITE CLEARANCE/GROUND PREPARATION

Prior to any construction tree works and protection are to be carried out and implemented in accordance with the BS5837:2012 Arboricultural Survey & Impact Assessment & Arboricultural Method Statement and Tree Protection Plans, ref RMT 931, published 14/12/2013 by RMT Tree Consultancy Ltd.

After tree protections are in place and before any construction commences, topsoils will be stripped from the proposed temporary access routes, any compound or working areas and reservoir site and stored as close as possible to its place of origin for the duration of construction. All soils arising from the reservoir excavations are to be used to create the reservoir bund and to reinstaate temporary working areas. On completion of construction, any compound and temporary accesses will be removed in their entirety and reinstated with soils and a wildflower grass seed mix.

All soiling works will be carried out in accordance with DEFRA Construction Code of Practice for the Sustainable Use of Soils on Construction Sites and British Standards for Topsoil (BS3882:2015) and Subsoil (BS8601:2013) for the stripping, handling, storage and spreading of soils. No ground works or soiling will be undertaken within the construction Exclusion Zone (CEZ), as defined by the temporary tree protection fence.

Area A - soils to be planted will have been reinstated after completion.

Area B - soils existing and will need to be cleared of vegetation and cultivated prior to planting Area C - soils are existing and any vegetation will need to be cut and removed prior to grading Ground Preparation

To all areas remove litter, debris and stone above 50mm in any dimension, stones 50-75mm are acceptable in planting and wildflower areas where they do not protrude.

Area A - planting areas to receive 300mm depth site topsoil.

Area A - wildflower areas to be subsoil where possible, otherwise topsoil to 100mm depth.

Area B - remove existing grazing using approved non-selective, systemic herbicide. Then cultivate to break up soils to 300mm depth and grade over prior to planting and seeding.

Area C - cut back existing vegetation and remove, carry out grading/harrow the area to create even ground suitable for seeding.

### PLANTING

PROPOSED WOODLAND AND SCRUB PLANTING AREAS A & B

- Transplants and container grown shrubs to be as per schedule..
- Planting to consist of mixed deciduous and evergreen tree and shrub/scrub species planted in single species groups of 5-15No.
- Shrubs to be planted in pits 100mm wider and deeper than pot size and bare root plants notch planted in an I, T, L or H shaped notch.
- All plants to receive Enmag slow release fertiliser at time of planting.
- All evergreen species to be treated with anti-desiccant before and immediately after planting.
- All plants to be individually protected with biodegradable deer proof guards, such as Tubex Nature Standard guards, 1.2m long 73-110mm diameter fixed with cable ties to 38mm 38mm square untreated 1.5m long stakes.
- Soils between plants to be raked on completion and sown with a clover and legume mix to suppress weed growth, Germinal Amenity A17 Legume and Clover mix or equivalent product sown at 2.5g/m<sup>2</sup> / 25kg/ha, sown in March after planting and before annual weeds establish in two equal sowings in transverse directions

PLANTING ESTABLISHMENT MAINTENANCE FOR FIVE YEARS

- Monthly maintenance visits to be undertaken during growing season in first year after planting, every other month in year two and every third month in year three onwards.
- Legume and clover sown within planting areas is intended to suppress weed growth and avoid chemical application to treat weeds. Legume and clover will also attract invertebrates. It should not be cut unless growth is smothering establishing scrub and if cut, should only be cut down to 150mm in height and after flowering to maximise wildlife benefit.
- If required apply non-selective herbicide to 600mm diameter around the base of all plants to keep weed free and aid establishment.
- Verify guards and stakes at each site visit to allow continued healthy tree growth.
- Remove guards and stakes for all plants at the end of year five.
- Refirm trees and plants to maintain upright growth at each maintenance visit.
- Prune plants as required to remove weak/damaged branches in November as required.
- Any trees or shrubs which are removed, damaged, dead or diseased within 5 years of planting will be replaced in the first available planting season with appropriate replacements of same or similar species and size of original plants.

SEEDING WITH MAINTENANCE

PROPOSED NATIVE SPECIES WILDFLOWER/GRASS SEEDING TO AREA A

Area inside the bund adjacent to the water to be sown with Emorsgate EP1 Pond Edge Mixture or equivalent product sown at 40kg/ha or 4g/m<sup>2</sup>. This is a mix which contains wild flowers and grasses suitable for sowing at the wet margins of ponds, streams and ditches.

Composition

Wild Flowers 20%

- 1.00% Angelica sylvestris – Wild Angelica
- 2.60% Centaurea nigra – Common Knapweed
- 1.00% Crucjata laevipes – Crosswort
- 1.00% Dipsacus fullonum – Wild teasel
- 0.40% Eupatorium cannabinum – Hemp Agrimony
- 1.20% Filipendula ulmaria – Meadowsweet
- 0.60% Geum rivale – Water Avens
- 4.00% Iris pseudacorus – Yellow Iris
- 0.80% Lathyrus pratensis – Meadow Vetchling
- 0.80% Lotus pedunculatus – Greater Birdsfoot Trefoil
- 0.20% Lycopus europaeus – Gypsywort
- 0.20% Oenanthe pimpinelloides – Corky-fruited Water-dropwort
- 1.20% Plantago lanceolata – Ribwort Plantain
- 0.20% Prunella vulgaris – Selfheal
- 1.00% Ranunculus acris – Meadow Buttercup
- 2.80% Silene dioica – Red Campion
- 1.00% Silene flos-cuculi – Ragged Robin

Grasses 80%

- 4.00% Agrostis capillaris – Common Bent
- 4.00% Anthoxanthum odoratum – Sweet Vernal-grass
- 1.60% Carex divulsa subsp. divulsa – Grey Sedge
- 34.40% Cynosurus cristatus – Crested Dogstail
- 1.60% Deschampsia cespitosa – Tufted Hair-grass
- 20.00% Festuca rubra – Red Fescue
- 4.00% Hordeum secalinum – Meadow Barley
- 8.00% Poa trivialis – Rough-stalked Meadow-grass
- 2.40% Schedonorus arundinaceus – Tall Fescue

Preparation

Control weeds and produce a good seed bed before sowing. To prepare a seed bed, first remove weeds using repeated cultivation then to produce a medium tilth.

Sowing

Sowing prior to filling the reservoir if possible or in late summer when the water levels are at the lowest. The seed must be surface sown and can be applied by machine or broadcast by hand. To get an even distribution and avoid running out divide the seed into two or more parts and sow in overlapping sections. Do not incorporate or cover the seed.

First Year Management

In the first year, annual weed growth may be cut back to encourage the development of a good perennial ground cover.

Management Once Established

The habitat value of pond edge sowings is enhanced if there are a variety of vegetation structures from dense tussock stands to bare and recently colonised mud. Management of these wetland areas should therefore aim to create variation with minimum disturbance to animal populations.

Variation in structure can be achieved by cutting back and removing short sections of vegetation every 2-3 years in rotation. Remove vegetation as a wedge, like removing a slice of cake. Dense stands of single species (eg yellow iris) may benefit from selective thinning. Vegetation removal causes the least disruption to wildlife when carried out between September and November.

Area on top and outside bund to be sown with Emorsgate EM3 Special General Purpose Meadow Mixture or equivalent product sown at 40kg/ha or 4g/m<sup>2</sup>. This meadow mixture contains a very wide range of species. It may be used to create a very diverse sward in situations where precise soil and site characteristics have not been established before sowing.

Composition

Wild Flowers 20%

- 0.40% Anthyllis vulneraria – Kidney Vetch
- 1.60% Centaurea nigra– Common Knapweed
- 0.60% Centaurea scabiosa – Greater Knapweed
- 0.10% Chaerophyllum temulum – Rough Chervil
- 0.40% Crucjata laevipes – Crosswort
- 1.00% Daucus carota – Wild Carrot
- 0.20% Echium vulgare – Viper’s-bugloss
- 1.00% Galium album – Hedge Bedstraw
- 0.70% Galium verum – Lady’s Bedstraw
- 0.10% Geranium pratense – Meadow Crane’s-bill
- 0.80% Knautia arvensis – Field Scabious
- 0.20% Lathyrus pratensis – Meadow Vetchling
- 1.00% Leucanthemum vulgare – Oxeye Daisy
- 2.40% Malva moschata – Musk Mallow
- 0.60% Medicago lupulina – Black Medick
- 0.40% Origanum vulgare – Wild Marjoram
- 2.20% Plantago lanceolata – Ribwort Plantain
- 0.40% Plantago media – Hoary Plantain
- 2.00% Poterium sanguisorba ssp sanguisorba – Salad Burnet
- 0.40% Primula veris – Cowslip
- 0.20% Prunella vulgaris – Selfheal
- 1.40% Rhinanthus minor – Yellow Rattle
- 0.20% Sanguisorba officinalis – Great Burnet
- 1.00% Silene dioica – Red Campion
- 0.20% Silene vulgaris – Bladder Campion
- 0.30% Vicia cracca – Tufted Vetch
- 0.20% Vicia sativa ssp. segetalis – Common Vetch

80% Grasses

- 8.00% Agrostis capillaris – Common Bent
- 28.00% Cynosurus cristatus – Crested Dogstail
- 24.00% Festuca rubra – Red Fescue
- 4.00% Phleum bertolonii – Smaller Cat’s-tail
- 16.00% Poa pratensis – Smooth-stalked Meadow-grass

Preparation

Control weeds and produce a good quality seed bed before sowing.

To prepare a seed bed first remove weeds using repeated cultivation. Then plough or dig to bury the surface vegetation, harrow or rake to produce a medium tilth, and roll, or tread, to produce a firm surface.

Sowing

Seed is best sown in the autumn or spring but can be sown at other times of the year if there is sufficient warmth and moisture. The seed must be surface sown and can be applied by machine or broadcast by hand. To get an even distribution and avoid running out divide the seed into two or more parts and sow in overlapping sections. Do not incorporate or cover the seed, but firm in with a roll, or by treading, to give good soil/seed contact.

First Year Management

Cut in mid to late summer, remove and compost arisings. Early August is a good time. Then keep the area short by mowing through to the end of March of the following year. Dig out any residual perennial weeds such as docks.

Management Once Established

In the second and subsequent years in early August and cut back with a scythe, strimmer or mower to c 50mm. Leave the ‘hay’ to dry and shed seed for 1-7 days then remove from site. Mow the re-growth through to late autumn/winter to c 50mm and again in spring if required.

PROPOSED NATIVE SPECIES WILDFLOWER/GRASS SEEDING TO AREA B

The area on the edge of the scrub planting is to be sown with Emorsgate EH1 Hedgerow Mixture or equivalent product sown at 40kg/ha or 4g/m<sup>2</sup>. This is a mix which contains wild flowers and grasses that are tolerant of semi-shade and is suitable for woodland edges.

Composition

Wild Flowers 20%

- 0.10% Achillea millefolium – Yarrow
- 1.00% Alliaria petiolata – Garlic Mustard
- 0.50% Anthriscus sylvestris – Cow Parsley
- 1.50% Carex divulsa ssp divulsa – Grey Sedge
- 2.00% Centaurea nigra – Common Knapweed
- 3.00% Chaerophyllum temulum – Rough Chervil
- 2.00% Crucjata laevipes – Crosswort
- 0.20% Dipsacus fullonum – Wild Teasel
- 0.50% Galium album – Hedge Bedstraw
- 0.10% Geranium pratense – Meadow Crane’s-bill
- 1.00% Geranium pyreniacum – Hedge Crane’s-bill
- 0.30% Geum urbanum – Wood Avens
- 0.20% Knautia arvensis – Field Scabious
- 1.00% Leucanthemum vulgare – Ribwort Plantain
- 1.00% Malva moschata – Musk Mallow
- 2.00% Plantago lanceolata – Ribwort Plantain
- 3.00% Silene dioica – Red Campion
- 0.50% Silene flos-cuculi – Ragged Robin
- 0.10% Torilis japonica – Upright Hedge-parsley

Grasses 80%

- 1.00% Agrostis capillaris – Common Bent
- 2.00% Anthoxanthum odoratum – Sweet Vernal-grass
- 1.00% Brachypodium sylvaticum – False Brome
- 50.00% Cynosurus cristatus – Crested Dogstail
- 2.00% Deschampsia cespitosa – Tufted Hair-grass
- 20.00% Festuca rubra – Red Fescue (w)
- 4.00% Poa nemoralis – Wood Meadow-grass

Preparation

Good preparation is essential to success so aim to control weeds and produce a good seed bed before sowing. To prepare a seed bed first remove weeds using repeated cultivation.

Sowing

Seed is best sown in the autumn or spring but can be sown at other times of the year if there is sufficient warmth and moisture. The seed must be surface sown and can be applied by machine or broadcast by hand. To get an even distribution and avoid running out, divide the seed into two or more parts and sow in overlapping sections. Do not incorporate or cover the seed but firm in with a roll, or by treading, to give good soil/seed contact.

First Year Management

Cut in mid to late summer (early August), remove and compost arisings. Then keep the area short by mowing through to the end of March of the following year. Dig out any residual perennial weeds such as docks.

Second year Management

In the second year in early August, back with a scythe, strimmer or mower to c 50mm. Leave the ‘hay’ to dry and shed seed for 1-7 days then remove from site. Mow the re-growth through to late autumn/winter to c 50mm and again in spring if required.

Management Once Established

Allow vegetation to become rough and “tussocky” in character. To control scrub and bramble development these tussocky areas may need cutting every 2-3 years between October and February. For wildlife this cutting is best done on a rotational basis so that no more than half the area is cut in any one year leaving part as a undisturbed refuge.

PROPOSED NATIVE SPECIES WILDFLOWER/GRASS SEEDING TO AREA C

This floodplain area is to be sown with a combined wildflower only seed mix of the following:

80% Emorsgate EM10F Tussock Wild Flowers

Composition Wild Flowers 100%

- 4.00% Achillea millefolium – Yarrow
- 2.00% Agrimonia eupatoria – Agrimony
- 0.50% Arctium minus – Lesser Burdock
- 7.00% Centaurea nigra – Common Knapweed
- 5.00% Centaurea scabiosa – Greater Knapweed
- 4.00% Chaerophyllum temulum – Rough Chervil
- 2.50% Crucjata laevipes – Crosswort
- 5.00% Daucus carota – Wild Carrot
- 8.00% Dipsacus fullonum – Wild Teasel
- 4.00% Filipendula ulmaria – Meadowsweet
- 9.00% Galium album – Hedge Bedstraw
- 4.00% Knautia arvensis – Field Scabious
- 2.00% Lathyrus pratensis – Meadow Vetchling
- 8.00% Leucanthemum vulgare – Oxeye Daisy
- 2.00% Lotus corniculatus – Birdsfoot Trefoil
- 8.00% Malva moschata – Musk Mallow
- 9.00% Plantago lanceolata – Ribwort Plantain
- 8.00% Poterium sanguisorba – Salad Burnet

6.00% Silene dioica – Red Campion  
2.00% Vicia Cracca – Tufted Vetch  
20% Emorsgate EM8F Wild Flowers for Wetlands

Composition 100% Wildflower

- 10.00% Achillea millefolium – Yarrow
- 12.00% Galium verum – Lady’s Bedstraw
- 6.00% Leucanthemum vulgare – Oxeye Daisy (Moon Daisy)
- 18.00% Plantago lanceolata – Ribwort Plantain
- 4.00% Rumex acetosa – Common Sorrel
- 1.00% Primula veris – Cowslip
- 3.00% Silene flos-cuculi – Ragged Robin
- 5.00% Ranunculus acris – Meadow Buttercup
- 4.00% Lotus pedunculatus – Greater Birdsfoot Trefoil
- 2.50% Lathyrus pratensis – Meadow Vetchling
- 0.50% Succisa pratensis – Devil’s-bit Scabious
- 5.00% Sanguisorba officinalis – Great Burnet
- 0.50% Vicia cracca – Tufted Vetch
- 18.00% Centaurea nigra – Common Knapweed
- 5.00% Filipendula ularia – Meadowsweet
- 5.00% Rhinanthus minor – Yellow Rattle
- 0.50% Taraxacum officinale – Dandelion

Combine the mixes as a ratio of 80/20 and sow at 15kg/ha or 1.5g/m<sup>2</sup>

Preparation

Prepare the ground for sowing in late summer by cutting and grade/harrow (aiming to create around 50% bare soil). Control any perennial weeds such as docks or thistles.

Sowing

Sow in the autumn using a 100% wild flower mixture. Bulk up the seed with an inert carrier such as sand to make distribution easier. The seed must be surface sown and can be applied by machine or broadcast by hand.

First Year Management

After sowing, continue mowing or grazing as needed aiming to keep the grass short (30-50mm). Continue mowing/grazing through winter and early spring as necessary. Stop mowing/grazing in April and leave until July/August then manage as below.

Second Year Management

After flowering in July or August take a ‘hay cut’: cut back with a tractor mower to c 50mm. Leave the ‘hay’ to dry and shed seed for 1-7 days then remove from site. Mow the re-growth through to late autumn/winter to c 50mm and again in spring if needed.

Management Once Established

After the first two years, leave uncut or ungrazed and it will become rough and “tussocky” in character. Unwanted perennial weeds (docks, thistles) may need control by selective cutting. To control scrub and bramble development tussocky areas may need cutting every 2-3 years between October and February.

## PLANTING SCHEDULE

Refer also to schedule on the following drawings for each area

Area A - dwg 305/L/101

Area B - dwg 305/L/102

WOODLAND PLANTING Total Areas (0.21ha + 0.08ha = 0.29ha)										
SPECIES		Area A MIX %	Area B MIX %	HEIGHT	AGE / CONDITION	ROOT CONDITION	Area A	Area B1	TOTAL	
Acer campestre	Field maple		5	80-100cm	1+1 Or 1/1	bare root		25	25	
Alnus glutinosa	Alder	25	10	80-100cm	1+1 Or 1/1	bare root	55	50	105	
Betula pendula	Silver birch	10	15	80-100cm	1+1 Or 1/1	bare root	22	75	97	
Corylus avellana	Hazel	5	5	80-100cm	1+2 Or 1/2	bare root	11	25	36	
Crataegus monogyna	Hawthorn	10	10	80-100cm	1+1 Or 1/1	bare root	22	50	72	
Ilex aquifolium	Holly		5	40-60cm	bushy 3 laterals	container grown 3litre pot		25	25	
Pinus sylvestris	Scot's pine		10	80-100cm	2x	root balled		50	50	
Prunus spinosa	Blackthorn		10	80-100cm	1+2 Or 1/2	bare root	22		22	
Quercus robur	English oak	5	25	80-100cm	1+2 Or 1/2	bare root	11	125	136	
Salix fragilis	Crack willow	15		80-100cm	0/2	bare root	33		33	
Salix viminalis	Common osier	15		80-100cm	0/1	bare root	33		33	
Sorbus aucuparia	Rowan	5	10	80-100cm	1+1 Or 1/1	bare root	11	50	61	
Sambucus nigra	Elder		5	80-100cm	1+1 Or 1/1	bare root		25	25	
		100	100				220	500	720	

SCRUB PLANTING Total Areas (0.3ha + 0.092ha = 0.38ha)										
SPECIES		Area A MIX %	Area B MIX %	HEIGHT	AGE / CONDITION	ROOT CONDITION	Areas A2, A3 & A4	Area B2	TOTAL	
Corylus avellana	Hazel	20	10	80-100cm	1+2 Or 1/2	bare root	36	270	306	
Crataegus monogyna	Hawthorn	30	30	80-100cm	1+1 Or 1/1	bare root	107	405	512	
Ilex aquifolium	Holly	10	10	40-60cm	bushy 3 laterals	container grown 3litre pot	36	135	171	
Prunus spinosa	Blackthorn	20	25	80-100cm	1+2 Or 1/2	bare root	89	270	359	
Malus sylvestris	Crab apple	5		80-100cm	1+1 Or 1/1	bare root		68	68	
Rosa canina	Dog rose	10		60-80cm	1+1 Or 1/1	bare root		135	135	
Salix viminalis	Common osier		20	80-100cm	0/1	bare root	71		71	
Sambucus nigra	Elder	5	5	80-100cm	1+1 Or 1/1	bare root	18	68	86	
		100	100				357	1351	1708	

### Drawing references

305/L/100	LANDSCAPE PROPOSALS OVERVIEW PLAN
305/L/101	LANDSCAPE PROPOSALS - AREA A PROPOSED RESERVOIR
305/L/102	LANDSCAPE PROPOSALS - AREA B PROPOSED BIODIVERSITY NET GAIN
305/L/103	LANDSCAPE PROPOSALS - AREA C PROPOSED BIODIVERSITY NET GAIN
305/L/104	LANDSCAPE PROPOSALS - PLANTING SCHEDULE & SPECIFICATION

Project BURHILL GOLF CLUB  
PROPOSED ADDITIONAL RES